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January 27, 1995

William F. Caton
Acting Secretary
Federal Communications Commission
Room 222
1919 M Street, N.W.
Washington D.C. 20054

JAN 27 1995

In Re: **Ex Parte Presentation in PR Docket No. 92-235 (Replacement of Part 90 by Part 88 to Revise the Private Land Mobile Radio Services)**

Dear Mr. Caton:

On January 26, 1995, Ron Marwitz and Stu Overby of Motorola, Inc. and myself met with Herb Zeiler, Kathryn Hosford, Jackie Chorney, Jay Markley, Mark Rubin, and Sonia Greenway of the Wireless Telecommunications Bureau; Greg Rosston of the Office of Plans and Policies; and Mike Marcus of the Office of Engineering and Technology on issues related to the above captioned proceeding. The representatives from Motorola discussed the user environment of the private land mobile frequency bands at issue in this proceeding and how that environment influences decisions on refarming. This discussion was largely based on Motorola's original comments in this proceeding filed on May 28, 1993. In addition, the attached materials were distributed to the FCC staff and should be associated with PR Docket No. 92-235.

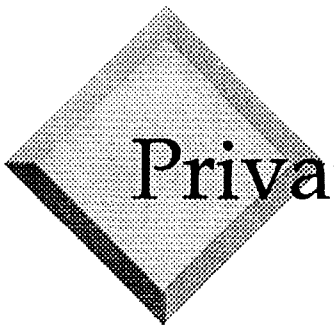
Please call me at (202) 429-7338 should you have any questions on this matter.

Sincerely,

Michael A. Lewis
Engineering Policy Advisor
Wiley, Rein & Fielding
Counsel to Motorola, Inc.

c.c.
Kathryn Hosford

No. of Copies rec'd 0+1
List A B C D E



Private Land Mobile

Motorola
1/26/95

Refarming Key Issue:

Fitting The Technology

To The Environment

and

User Requirements

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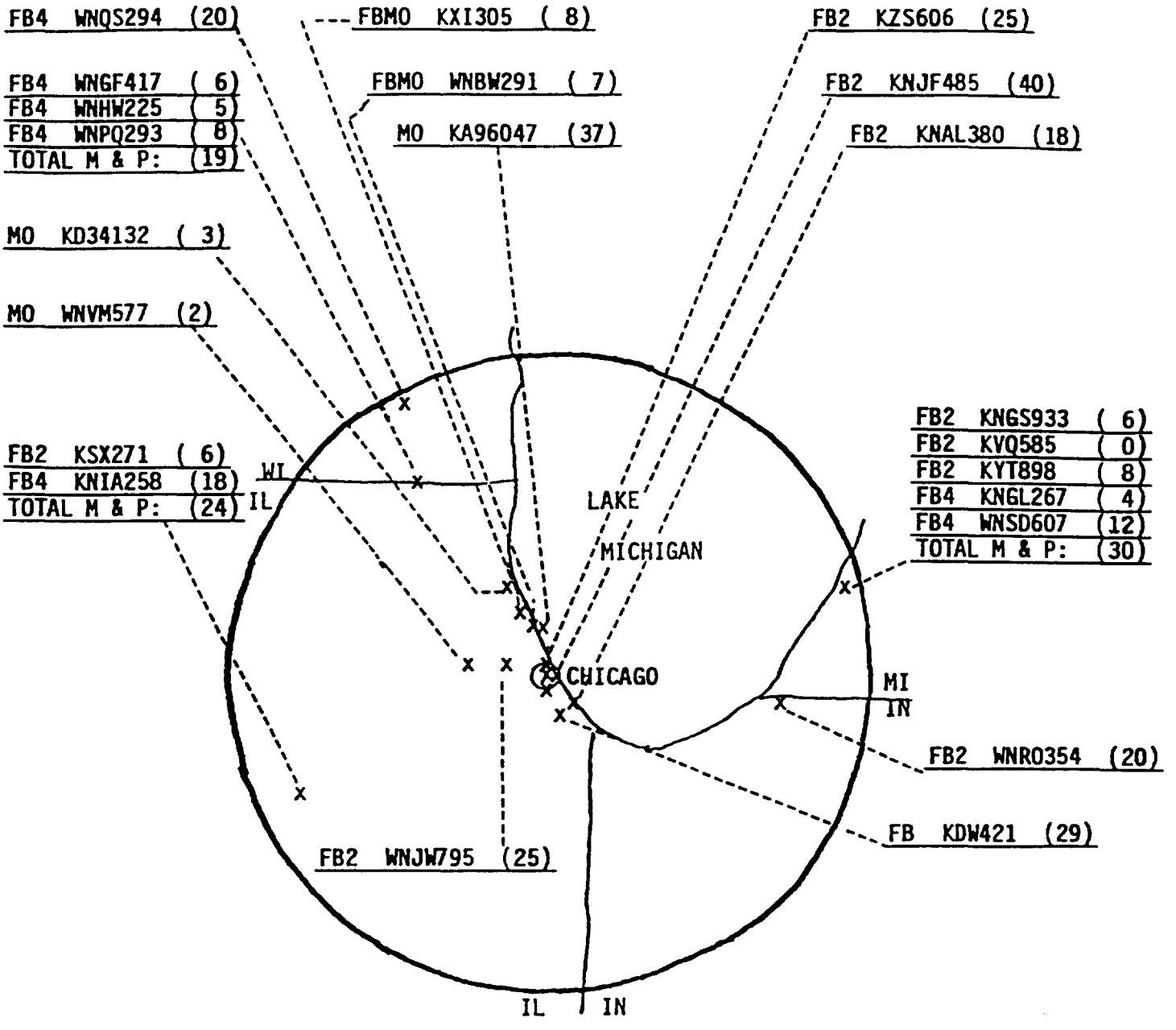
Private Land Mobile

Refarming

- 25 MHz of Nationwide Spectrum
  - 9 MHz VHF and 16 MHz UHF
  - 6-12 MHz UHF (Land Mobile/TV Sharing) in 11 Urban Areas
- 13 Million Licensed Transmitters
  - More Than $20 Billion User Investment
- Shared Spectrum
  - Multiple Systems on Same Channel Same Area
  - Coexistence Through Coordination
- Federal Government Parallel Refarming Initiative
  - VHF and UHF Bands
  - Requires 12.5 KHz Starting 1995 - All Systems Converted by 2005 - 2008

CHICAGO, ILLINOIS



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* FREQUENCY: 461.025 *
* +SEARCH AREA: 70 MILES RADIUS OF COORDINATES*
* 41-52-28N 87-38-22W *
* TOTAL NUMBER OF MOBILES & PORTABLES: 307 *
* SOURCE: C.E.T., INC. DATABASE *
* LAST DATABASE UPDATE: JANUARY 24, 1992 *
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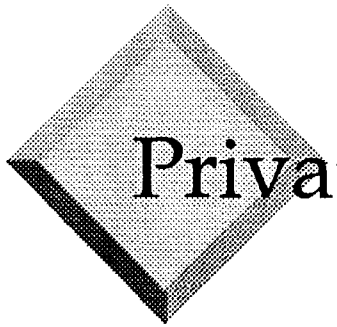

Private Land Mobile Refarming

- Diverse Group of Business and Government Users
  - Police, Fire, Highway Maintenance, Forestry Conservation and Special Emergency
  - Petroleum and Utilities
  - Road and Building Construction, Large Industrial and Small Business
  - Railroads, Trucking and Airlines
- Wide Variation in User Requirements and Solutions
  - Coverage: On-Site to State Wide
  - Custom Features
  - Grade of Service
  - Cost

Markets Depending on Land Mobile Communications

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Public Safety

City, County, State
- Police
- Fire
- Penal Systems
- Civil Defense
- Justice
- Alcohol Control
- Housing
- Narcotics Control

Emergency Medical
- Ambulance
- Hospital
- Blood, Oxygen & Vital Organ Banks
- Special Rescue & Disaster Relief

Product

Agriculture
Fishing
Lumber
Mining
Oil Drilling & Exploration
Industrial
- Mills
- Foundries
- Refineries
- Food Processing
- Printing & Publishing
- Manufacturing
- Assembly

Transportation

Airlines
Railroad
Shipping
Mass Transit
School Bus
Taxis & Limos
Armored Car
Trucking
- Local
- Interstate
- Express Svcs.
- Messenger & Delivery
- Route Svcs.
- Fuel Delivery

Services

Auto Service
Business & Professional
Communications Media
Construction
Education
Financial Services
Hospitality & Entertainment
Maintenance Contractors
Non-Profit Orgs
Property Management
Real Estate
Rental Sales
Wholesalers
Utilities
Public Services
- Conserv., Parks & Forestry
- Highway & Street Maint.
- Public Health & Welfare
- Public Works
- Flood Control
- Pollution Control
- Sanitation & Sewers

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Private Land Mobile

Business and Industrial Systems

- Retail Operations
  - Low Tier Analog
  - Portable to Portable
  - 4 Portables
  - Total Cost $800
- Industrial Plant Security
  - Conventional Analog
  - Stand Alone Base/Control Station
  - 25 Portables
  - Total Cost $22,000
- Highway Construction
  - Conventional Analog
  - Stand Alone Repeater
  - 60 Mobiles/Portables
  - Total Cost $72,000

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Private Land Mobile

Public Safety and Utility Systems

- County Public Safety Services
  - Conventional Analog
  - Stand Alone - 2 Repeaters
  - 143 Mobiles/Portables
  - Total Cost $443,000
- Power Utility
  - Astro Digital Conventional
  - Stand Alone Infrastructure
  - 31 Sites - 1 to 3 Repeaters Per Site
  - 680 Mobiles/Portables
  - Total Cost $1,542,000
- Major City Police
  - Astro Digital Encrypted Conventional
  - Simulcast Infrastructure
  - 30 Interconnected Sites
  - 57 Channels
  - 7000 Mobiles/Portables
  - Total Cost $35.2 Million

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Private Land Mobile

Refarming Below 512 MHz*

Service	Channels 150-174 MHz	Channels 450-470 MHz**
Public Safety	244	74
Business	26	155
Industrial	116	61
Land Trans	167	32
Total	553	324

* 108 - 216 Channels in 11 Major Urban Areas in 470-512 MHz Band

** Does Not Include 615 Low Power 12.5 KHz Offset Channels

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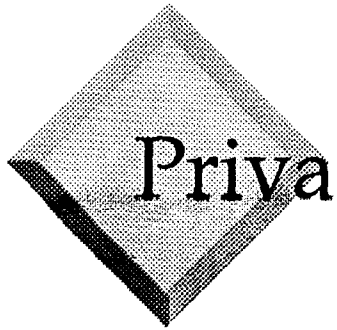
Private Land Mobile

Spectrum History

- 25 - 50 MHz
  - 1956 - 40 to 20 KHz Channel Bandwidth
- 150 - 174 MHz
  - 1957 - 60 to 30 KHz Channel Bandwidth
  - 1960's - 30 to 15 KHz Channel Assignment
- 450 - 470 MHz
  - 1957 - 100 to 50 KHz Channel Bandwidth
  - 1967 - 50 to 25 KHz Channel Bandwidth
  - 1970's - 12.5 KHz Low Power Channel Assignments
- 470 - 512 MHz
  - 1969 - 12 MHz UHF-TV/Land Mobile Sharing



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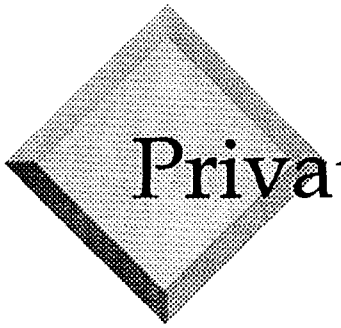
Private Land Mobile

Refarming

- Reduced Channel Bandwidth 1956 to 1967
  - Less Than 1 Million Units Affected
  - Equipment Readily Converted in Field
  - No Interruption of Communications
- Reduced Channel Assignment Spacing 1960's and 1970's
  - Required Both Co-channel and Adjacent Channel Coordination
  - No Impact on Equipment/Communications
- Reduced Channel Bandwidth 1995
  - Cannot Economically Convert User Equipment in Field



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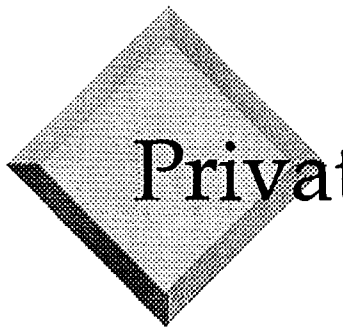
Private Land Mobile

Real World Migration

- During the Past 50 Years PLM Users Have Moved to New Spectrum or Technology Platforms to Obtain
  - Significant Improvements in Communications Quality
  - New Operational Features and Capabilities
- Low Band VHF to High Band VHF
  - Reduced Noise
  - Eliminate Skip Propagation
  - Portable Performance
- High Band VHF to UHF
  - Wide Area Mobile to Mobile Communications
  - Total Urban Area Portable Coverage
- VHF/UHF to 800 MHz
  - Exclusive Area Channel Assignments
  - Trunking
  - Computer Controlled Communications



Private Land Mobile

Refarming Requirements

- Voice Links
- Data Throughput
- Sophisticated Wide Area Systems
- Low Cost Radios
- Full Line of Equipment
- APCO-25 Digital Migration
- Forward/Backward Compatibility
- Interoperability
- Migration Without Communications Interruption
- One or Two Step Migration - User Option

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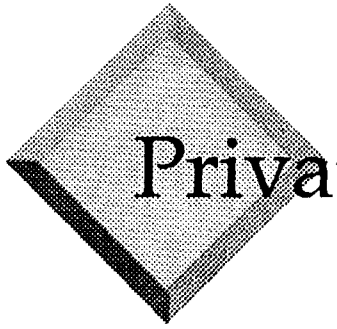
Private Land Mobile
Real World Refarming/Migration

- Reduced Bandwidth - Same Technology Platform
  - 12.5 KHz Analog FM
  - Same Features/Capabilities
  - Equipment Replacement Life Cycle - 10 Years, 10%/Year
  - Backward Compatibility With 25 KHz FM During Transition
  - Interoperability With Other Systems Where Required
  - Little or No Cost Premium

Private Land Mobile
Real World Refarming/Migration

- Reduced Bandwidth New Technology Platform
  - 12.5 KHz Digital FM
  - New Features/Capabilities e.g. Data Over Voice and Encryption
  - Support Existing Capabilities e.g. Simulcast and Trunking
  - 1 to 3 Years System Planning/Funding
  - No Communications Interruption - Parallel Operations
  - Backward Compatibility with 25 KHz FM and Forward if Feasible with 6.25 KHz
  - Interoperability
  - Cost Commensurate with New Features/Capabilities
  - 15 to 18 Year Life Cycle



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Refarming Key Issue:

Fitting The Technology To The Environment

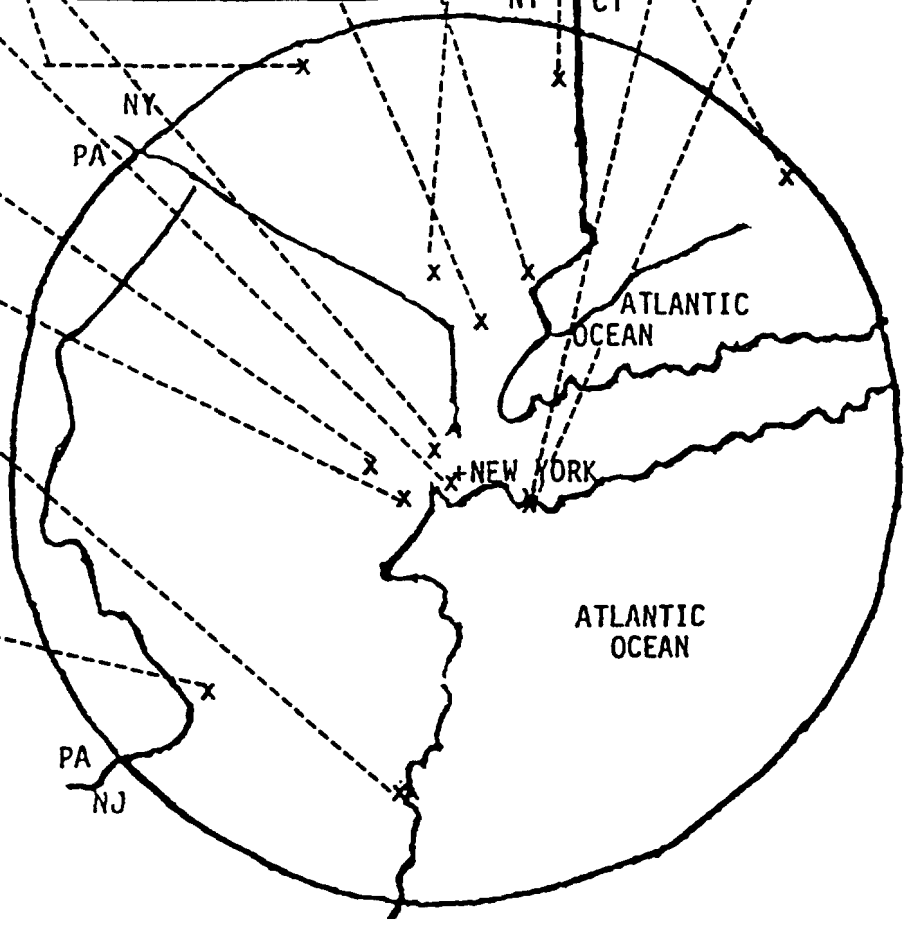
and

User Requirements

Results In

Graceful Refarming/Migration

NEW YORK, NEW YORK



FB4 WNRB535 (121)

FB2 KRD407 (20)

FB2 WNPV771 (60)
FB2 WNBA325 (20)
TOTAL M & P: (80)

FB4 WNKH460 (3)
FB4 WNLA835 (8)
FB4M WNHL249 (10)
TOTAL M & P: (21)

FB2 WNPQ359 (10)

FB4 KNBK621 (15)
FB4 KNJM922 (10)
FB4 KNJM974 (10)
FB4 WNFJ211 (10)
FB4 WNGW773 (10)
FB4 WNQI284 (6)
TOTAL M & P: (61)

FB4 WNUX679 (60)

FBMO KIR381 (5)

FB KBC366 (5)

FB4 WNHP704 (5)
FB4 WNJT271 (40)
FB4 WNLZ378 (15)
FB4 WNMZ393 (25)
TOTAL M & P: (85)

FB4 WNLG777 (20)

FB2 KXX741 (40)

FB2 KRH908 (25)

FB2 KNIA770 (10)

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* FREQUENCY: 461.025 *
* +SEARCH AREA: 70 MILES RADIUS OF COORDINATES*
* 40-45-06N 73-59-39W *
* TOTAL NUMBER OF MOBILES & PORTABLES: 563 *
* SOURCE: C.E.T., INC. DATABASE *
* LAST DATABASE UPDATE: JANUARY 24, 1992 *
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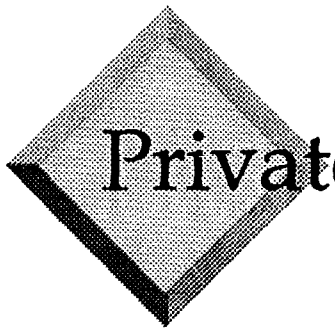

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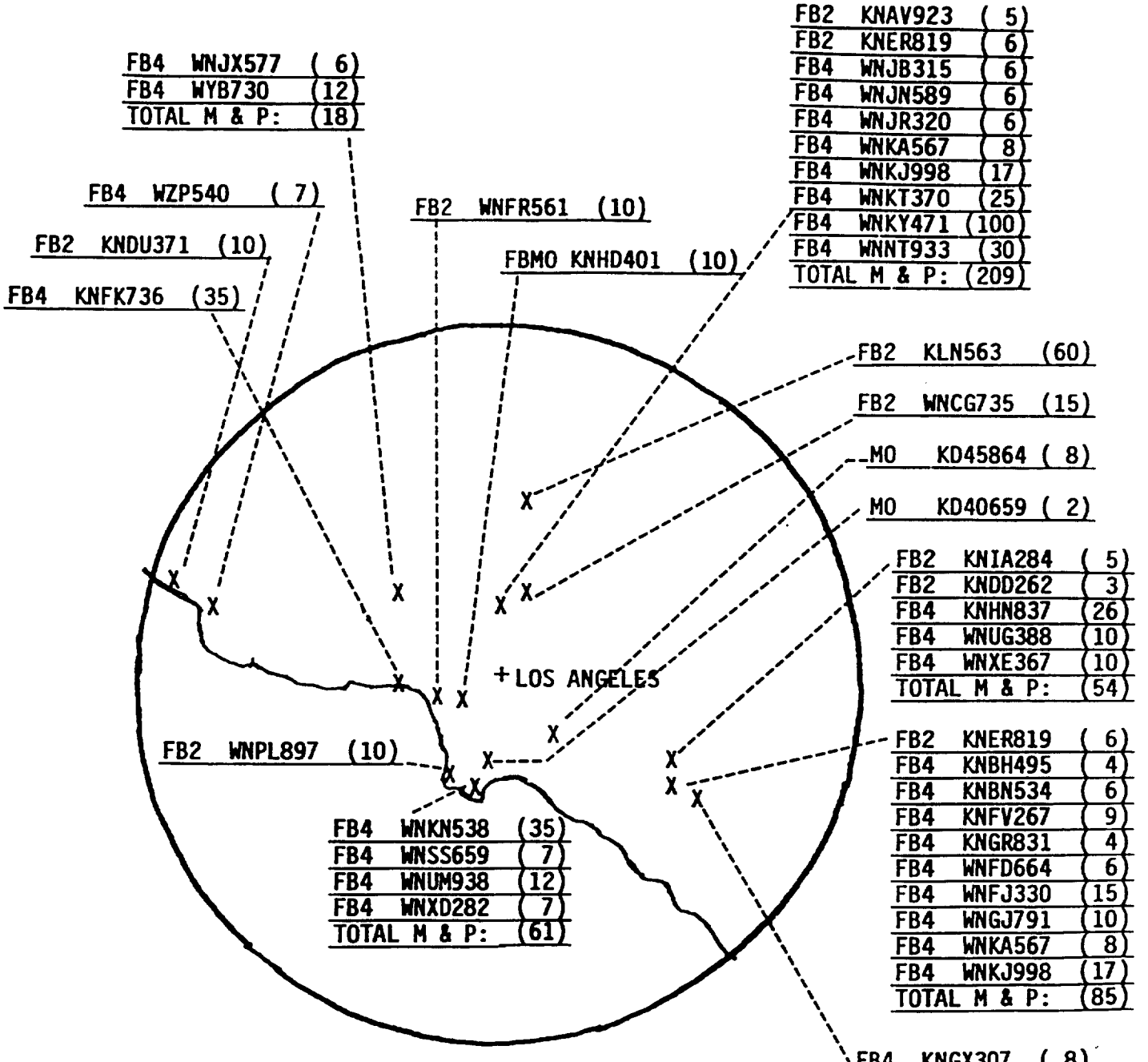
Refarming
Spectrum Profile

- 150 - 174 MHz
  - Almost Every 15 KHz Channel in Use in Major Urban Areas
  - Most Systems Single Frequency Simplex
  - Service Groups Have Contiguous Channels
- 450 - 470 MHz
  - Paired 25 KHz Channels
  - Base Station or Mobile Relay Operation
  - Low Power 12.5 KHz Offsets Heavily Used in Many Services
  - Service Groups Have Contiguous Channels

LOS ANGELES, CALIFORNIA

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*  FREQUENCY:  461.050                           *
*  +SEARCH AREA:  70 MILES RADIUS OF COORDINATES*
*                 34-03-15N  118-14-28W          *
*  TOTAL NUMBER OF MOBILES & PORTABLES:  719     *
*  SOURCE:  C.E.T., INC. DATABASE                *
*  LAST DATABASE UPDATE:  JANUARY 24, 1992       *
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